

#### AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A polymer ~~matrix~~-composite material, comprising:
  - (1) only one polymer matrix, the matrix consisting of a polyurethane and an optional polyisocyanurate, the polyurethane formed by reaction of a reaction mixture, comprising:
    - (a) one or more monomeric or oligomeric poly- or di-isocyanates;
    - (b) a first polyol selected from the group consisting of polyether polyols and polyester polyols, the first polyol having a first hydroxyl number; and
    - (c) a second polyol selected from the group consisting of polyether polyols and polyester polyols, the second polyol having a second hydroxyl number less than the first hydroxyl number, and forming the polyurethane, wherein the polyurethane is less rigid than a second polyurethane that would be formed by the reaction of the first polyol and the one or more monomeric or oligomeric poly- or di-isocyanates in the absence of the second polyol, and wherein the second polyol is between about 5 wt % and about 20 wt %, based on the total weight of the first and second polyols being 100 wt %; and
  - (2) about 60 to about 85 wt% of an inorganic particulate material dispersed in the polymer matrix, the inorganic particulate material being about 60 to about 85 wt%, based on the total weight of the composite material.
2. (Currently Amended) The polymer ~~matrix~~-composite material of claim 1, wherein the material is foamed.
3. (Currently Amended) The polymer ~~matrix~~-composite material of claim 1, further comprising one or more inorganic fibers disposed throughout the only one polymer matrix.
4. (Currently Amended) The polymer ~~matrix~~-composite material of claim 1, further comprising axially oriented fiber rovings disposed on, in, or beneath the surface of the composite.
5. (Canceled)
6. (Canceled)

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7. **(Currently Amended)** The polymer ~~matrix~~-composite material of claim 1, wherein the inorganic particulate material is one or more of a fly ash, bottom ash, or particulate glass.

8. **(Currently Amended)** The polymer ~~matrix~~-composite material of claim 1, wherein the inorganic particulate material has a particle size distribution ranging from about 0.0625 in. to below about 325 mesh.

9. **(Currently Amended)** The polymer ~~matrix~~-composite material of claim 1, wherein the inorganic particulate material contains less than about 0.5 wt% water.

10. - 27. **(Canceled)**

28. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 1, wherein the composite material is self-skinning.

29. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 1, having a density ranging from about 20 to about 90 lb/ft<sup>3</sup>.

30. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 1, having a density ranging from about 20 to about 60 lb/ft<sup>3</sup>.

31. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 1, wherein the polymer matrix composite material additionally comprises a polyisocyanurate formed by reaction of the monomeric or oligomeric poly- or di-isocyanate with water.

32. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 1, wherein the monomeric or oligomeric poly- or di-isocyanates comprise a methylene diphenyl diisocyanate (MDI).

33. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 32, wherein the MDI has a viscosity ranging from about 25 to about 200 cp at 25 °C.

34. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 32, wherein the MDI has an NCO content ranging from about 30% to about 35%.

35. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 32, wherein the MDI provides at least one equivalent NCO group to one equivalent OH group from the polyols.

36. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 35, wherein the MDI provides about 5% to about 10% excess NCO groups.

37. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 1, wherein the ratio of isocyanates to polyols, based on equivalent weights, is from about 0.5:1 to about 1.5:1.

38. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 37, wherein the ratio of isocyanates to polyols, based on equivalent weights, is from about 0.8:1 to about 1.1:1.

39. **(Canceled)**

40. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 1, wherein the ratio of the second polyol to the first polyol is about 15 wt%.

41. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 3, wherein the one or more inorganic fibers disposed in the polymer matrix are present in amounts less than 10 % by weight, based on the total weight of the material.

42. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 1, wherein the first and the second polyols are non-EO tipped polyols.

43. **(Currently Amended)** The polymer ~~matrix~~ composite material of claim 1, wherein the first polyol is about 6 to about 18 wt% and the second polyol is greater than 0 to about 10 wt%, based on the total weight of the composite material.

44. **(Currently Amended)** A polymer ~~matrix~~-composite material, comprising:

only one polymer matrix, the matrix consisting of a polyurethane and an optional polyisocyanurate, the [a)] polyurethane formed by reaction of a reaction mixture, comprising:

one or more monomeric or oligomeric poly- or di-isocyanates;

a first ~~non-EO-tipped~~ polyol selected from the group consisting of polyether polyols and polyester polyols, the first polyol having a first hydroxyl number; and

a second ~~non-EO-tipped~~ polyol selected from the group consisting of polyether polyols and polyester polyols, the second polyol having a second hydroxyl number less than the first hydroxyl number and forming the polyurethane, wherein the polyurethane is less rigid than a second polyurethane that would be formed by the reaction of the first polyol and the one or more

monomeric or oligomeric poly- or di-isocyanates in the absence of the second polyol; and

(2) about 60 to about 85 wt% of an inorganic particulate material dispersed in the polymer matrix, the inorganic particulate material being about 60 to about 85 wt%, based on the total weight of the composite material; and

wherein the polymer composite material has a flexural strength of at least 1929 psi.

45. (Canceled)

46. (Currently Amended) The polymer ~~matrix~~ composite material of Claim [[45]] 44, wherein the flexural strength is at least 2786 psi.

47. (Currently Amended) The polymer ~~matrix~~ composite material of Claim [[45]] 44, wherein polymer matrix composite material has a flexural modulus of 118,331 psi.

48. (Currently Amended) The polymer ~~matrix~~ composite material of Claim 1, wherein the inorganic particulate material is one or more of a fly ash and bottom ash.

49. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 48, wherein the inorganic particulate material is present in an amount from about 80 wt% to about 85 wt%, based on the total weight of the composite material.

50. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 49, having a density ranging from about 20 to about 41 lb/ft<sup>3</sup>.

51. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 49, having a density ranging from about 31 to about 38 lb/ft<sup>3</sup>.

52. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 48, wherein the inorganic particulate material is present in an amount from greater than 80 wt% to about 85 wt%, based on the total weight of the composite material.

53. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 48, having a flexural strength of at least 1319 psi.

54. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 48, having a flexural strength from 1319 psi to 1929 psi.

55. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 51, having a flexural strength of from 1319 psi to 1650 psi.

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56. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 48, having a density ranging from about 20 to about 41 lb/ft<sup>3</sup>.

57. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 48, having a density ranging from about 31 to about 38 lb/ft<sup>3</sup>.

58. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 48, wherein the material is foamed.

59. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 1, wherein the composite material comprises extruded composite material.

60. (Currently Amended) The polymer ~~matrix~~-composite material of Claim 44, wherein the composite material comprises extruded polyurethane and inorganic particulate material.

61. (Currently Amended) The polymer ~~matrix~~-composite material of Claim [[45]] ~~44, wherein the composite material comprises extruded polyurethane and inorganic particulate material~~ first polyol and the second polyol are non-EO tipped polyols.

62. (Currently Amended) A polymer ~~matrix~~-composite material comprising:

(1) a polymer matrix comprising a polyurethane and an optional polyisocyanurate, the [[a]] polyurethane formed by reaction of a reaction mixture, comprising:

- (a) one or more monomeric or oligomeric poly- or di-isocyanates;
- (b) a first polyol selected from the group consisting of polyether polyols and polyester polyols, the first polyol having a first hydroxyl number; and
- (c) a second polyol selected from the group consisting of polyether polyols and polyester polyols, the second polyol having a second hydroxyl number less than the first hydroxyl number, and forming the polyurethane, wherein the polyurethane is less rigid than a second polyurethane that would be formed by the reaction of the first polyol and the one or more monomeric or oligomeric poly- or di-isocyanates in the absence of the second polyol;

(d) a blowing agent comprising water, the water being about 0.10 wt% to about 0.40 wt%, based on the weight of the total polyol; and

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(2) about 60 to about 85 wt% of an inorganic particulate material, based on the total weight of the composite material.

63. **(Currently Amended)** The polymer matrix composite material of Claim 62, wherein the first polyol is in an amount of about 6 to about 18 wt%, and the second polyol is an amount of up to 10 wt%, based on the total weight of the composite material.

64. **(Currently Amended)** The polymer matrix composite material of Claim 62, wherein the composite material comprises extruded polyurethane and inorganic particulate material.

65. **(Currently Amended)** The polymer matrix composite material of Claim 62, wherein the first polyol has a first molecular weight, and the second polyol has a second molecular weight, wherein the first molecular weight is less than the second molecular weight.